



Jen Bro

ARCHBOLD FEBRUARY 2021 NEWS for curious minds



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New Genes for Conservation



Outdoor mosquitofish tanks for new NSF-funded genetic rescue research at Archbold.

In [September 2019](#), we featured Dr. Sarah Fitzpatrick's exciting work in the emerging field of genetic rescue.
Introducing new individuals with different genes



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into isolated and potentially inbred populations has great potential as a conservation tool. For example, introducing eight Mountain Lions from Texas into Florida in 1995 boosted the critically endangered Florida Panther population. Fitzpatrick returned to Archbold in Fall 2020 to lead a new study funded by the National Science Foundation with colleagues Dr. Gideon Bradburd (W. K. Kellogg Biological Station, Michigan State University) and Dr. Betsie Rothermel (Archbold Herpetology and Restoration Ecology Director). **The team will conduct long-term experiments exploring how to increase genetic diversity with Eastern Mosquitofish.** Fitzpatrick shared, "Using a common species like mosquitofish provides a chance to experiment and fine-tune the strategy in a way not possible with endangered species." The team built outdoor fish tanks at Archbold to mimic isolated populations allowing researchers to control the evolutionary history and environments for each population. Fitzpatrick continued, "We will monitor the tanks for up to two more years making this a unique long-term multigenerational dataset with lots of replication. Genetic rescue is typically used as a last resort strategy when a population is on the brink of extinction. If we can show that introducing new genetic variation speeds up adaptation to environmental change—it could have major implications for conservation and management of biodiversity."

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"Archbold Biological Station is one of America's iconic centers of continuous research and education in field biology. It is a prototype of what we need all across America."
— Edward O. Wilson

This is Archbold



Mary Margaret Hardee



The Wild Divide

Watch [The Wild Divide](#) film featuring the expedition of Carlton Ward, Mallory Dimmitt and Joe Guthrie through the Lake Wales Ridge.

Buck Island Ranch from the perspective of Mary Margaret Hardee, Ranch Operations Data Assistant, and her horse.

Archbold manages 20,000 acres of land from rare scrublands to ephemeral wetlands to ranchlands. As we begin the new year looking forward, we pause to reflect. In 2020, we acquired 151 acres of scrub habitat thanks to generous donations. Conserving these precious habitats is not enough. We have to manage them. The Burrowing Owls, Florida Scrub-Jays, Gopher Tortoises, and rare plants depend on us to keep the landscape open. And, we keep our finger on the pulse. Examples from 2020 abound. Thanks to modern technology, Archbold Avian Ecology programs started monitoring Florida Scrub-Jays remotely using a cellular tracking system revealing the complex lives of our boisterous blue-feathered friends. Working with regional partners, we contributed to the small population increase of the endangered Florida Grasshopper Sparrow. We initiated a new Predator-Prey Program to better understand how mammals use the surrounding matrix of lands. We learned how rainfall patterns influence phytoplankton and water clarity in Lake Annie over the long-term. Archbold plant ecologists were busy translocating five rare scrub plants—including Florida Ziziphus, three *Dicerandra* mints, and Avon Park Harebells (*Crotalaria avonensis*)—increasing their chances of survival. Since the pandemic began last year, we adapted with new safety protocols. We moved our public events to a virtual platform to reach a global audience. Check out our [Vimeo](#) and [YouTube](#) pages for a treasure chest of Archbold education and entertainment videos. **Thank you for your curiosity and for supporting us as we continue our work advancing science, conservation, and education in the heart of Florida.**

Full Speed Ahead



Kevin Patram preparing the tower at Buck Island Ranch to receive P2P.

Buck Island Ranch is known for research employing cutting edge technology like camera traps to monitor elusive wildlife, GPS collars to track cows, and carbon flux towers to measure gas exchanges like carbon dioxide. Back in the office, however, all staff from Program Director, Dr. Betsey Boughton, to Ranch Manager, Gene Lollis, have toiled for years with super slow Internet speed. Boughton shared, "You can imagine that 14 people sharing 5 Mbps (Megabits per second) Internet speed was challenging. This slow Internet reduced our communication and research capabilities." The Internet speed was so bad that staff were using personal WIFI devices to do their jobs. The cost for a dedicated Internet service with four miles of fiber was prohibitive. **Archbold's IT Administrator, Kevin Patram, decided to try a Point to Point (P2P) connection from the Station water tower to a Ranch weather tower which spans about 16 km.** He shared, "I had no idea if P2P would work considering the limited towers and elevation change from ridge top to ridge bottom. Our Archbold team put on our respective caps and went to work including myself, Bert Crawford, Operations Manager, Lupe Gonzales, Senior Crewman, and Steffan Pierre, Environmental Specialist at Buck Island Ranch." A separate USDA LTAR funded Airbands survey provided an alternative perspective on

Online Events

Feb 16, Feb 23: 9:30 AM

Florida Nature Walks
with Mr. Dustin

Join Dustin Angell, Archbold's Director of Education, on Tuesday mornings at 9:30 AM EST as he live-streams from the outdoors in sunny Florida using a selfie-stick and smartphone.

[Register here](#)

Feb 11: 3:30 PM

'Sedge Diversity and Identification in Florida'

Scott Ward, Archbold

[Register here](#)

Feb 18: 3:30 PM

'Bloom or Bust: The Implications of Flowering Timing in Garberia'

Erin Stewart, Archbold

[Register here](#)

P2P feasibility. Fanfare!!!! **P2P is a success and the installation achieved a major upgrade to 50 Mbps.**

Patram just marked his twentieth year working for Archbold. Director Hilary Swain expressed special appreciation for Kevin's continued ingenuity saying, "This was a very happy day for all Ranch staff and for everyone else who collaborates with Buck Island Ranch. Speedier days lie ahead!"

Wild Observations



Deborah Mitchell describes her drawings on cow skulls during 'Wild Observations'. Video screenshot by Dustin Angell.

Archbold hosted a virtual presentation 'Wild Observations' on January 28 featuring Deborah Mitchell who weaved together her art with perspectives from Archbold scientists (both live and pre-recorded videos) and visual media. [Watch here.](#) Mitchell began with a video describing her motivation for drawing art on cow skulls to represent life on a ranchland. She then shares, "I use the visual arts to enhance our understanding of why the environment is so vital to our health. 'Wild Observations' is a way to explore the intersection of art and science." Viewers embark on a journey into our understanding of nature with glimpses of Mitchell's beautiful paintings, drawings, photographs, and collages. From Buck Island Ranch, Dr. Hilary Swain describes seasonal wetlands as 'the little engines that can' in tandem with a slideshow by Mitchell showing photographs of water flow in the Headwaters of the Everglades. Next up is Dr. Reed Bowman who discusses the lives of imperiled birds like Red-cockaded Woodpeckers, Crested Caracaras and Florida Scrub-Jays while we see art blending bird sketches with pressed

Watch all past virtual events [here.](#)

plants from the bird's habitat. Bowman offers words of wisdom saying, "I always tell my students to go out into the field and watch because inevitably you will see something you don't understand." Both scientists and artists overlap in their explorations to understand the unknown. Dr. Mark Deyrup shares, "Moths are like the new frontier of pollination. We know very little about what moths do because they are nocturnal." Mitchell shows her blue cyanotype prints of a hawkmoth. Archbold supports about 60 species of butterflies and 1200 species of moths! Artwork of bear skulls, tracks, and wildlife on ranches segues to Joe Guthrie, Archbold's new Predator-Prey Program Director. Guthrie discusses his work to better understand mammals and wildlife corridors in Florida. All video interviews were captured by Dustin Angell, Archbold Education Coordinator. Learn more about Deborah and her visual art exhibit 'Wild Observations' [here](#).

Welcome Back, Linda!



Linda Gette collecting long-term data on the marked Gopher Tortoise population at Archbold.

Linda Gette first arrived at Archbold in 2015. Traveling south from Virginia, Linda was eager to start volunteering at the Station, explaining, "**Giving to Archbold makes me feel part of the organization.** Between the world-renowned research and cheery young children, I am making my special contributions, and that is awesome!" **Linda has returned to**

volunteer at the Station every January, making this year her 7th annual pilgrimage south. Linda enjoys assisting fieldwork and data collection for the research programs in addition to helping philanthropy, general administration, and education. "I enjoy the opportunity to help with fieldwork at the Station because of the wildlife I observe while out collecting data with the researchers," she reflected. Whether she is tending to the native garden at the Learning Center or taking adults and children on guided nature walks through the scrub, she always smiles and is willing to lend a helping hand wherever needed. Archbold is proud and grateful for all our volunteers, including Alice Oldford, who volunteers to lead the volunteer program. Each year, Archbold's faithful friends contribute copious research and outreach hours supporting the Station and ranch. Archbold is currently closed to daily visitors. Stay tuned and look out for information on our website for opportunities to volunteer.

If you enjoy these stories from Archbold, please consider a gift to support our research and education programs. [Donate now](#). Your gift really makes a difference.

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